

Mobile Usability: An Antecedent for Influencing Purchase Intention Moderated by Omni-Channel Integration Quality

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Abstract—The new concept of omni-channel has inspired researchers to develop a model of consumer confusion to increase purchase intention. Previous studies were tested that the omni-channel integration quality can improve customer satisfaction. As a novelty, this study introduced omni-channel integration as a moderating variable that influence consumer confusion to the intention of purchase. This paper constituted a hypothetical development about the proposed omni-channel integration as a part of the e-quality service. This proposed research aimed to explore the effect of consumer confusion towards purchase intention moderated by omni-channel integration. Three hypotheses were modeled in this research proposal. The future results of this research are expected to be a significant contribution towards business, science, and society.

Keywords—consumer confusion; purchase intention; mobile usability; omni-channel integration quality

I. INTRODUCTION

E-commerce is relatively new industry in Indonesia, hence it is predicted that the industry will experience rapid growth over the next few years. The potential of online shopping in Indonesia is growing up together with the Internet accessibility which both encourage to increase the confidence of consumers to shop online than offline at a store. In 2012, e-commerce sales in Indonesia reached 1.04 billion US dollars and it is expected to keep increasing to reach 4.49 billion US dollars in 2016 [1].

Contrary to the above data, the survey of Association of Indonesian Internet Services [2] shows that the use of the Internet for buying and selling online in Indonesia is still low at around 11 percent. The highest of Internet usage in Indonesia is used for social networks (87.4 percent) and searching or browsing information (68.7 percent).

Aspects of usability is very important in mobile applications [3]. According to reference [4], fifty-seven percent (57%) of companies do not take advantage of mobile

strategy because they will face some challenges in integration and mobile strategy [5]. Firstly, the development of mobile applications requires a large cost [4], [6]. Secondly, most companies do not get the expected results of the company. Market research showed that low usability has been identified as the most important factors which influence the consumers' decision to reject mobile applications [4], [6], [7]. The low usability will lead to failure of mobile applications that have an impact on its dissatisfaction [7]. The website shows that the higher level of usability associated with high satisfaction perceived by the user [8].

Omni-channel retail is defined as a "nonline" experience or a mix of online and offline behavior [9]. Google reveals that there are 80 percent of shoppers will research online before making a purchase, and they are turning to other devices to meet their needs [9]. For example, fifty-one percent (51%) of shoppers will research products online and then visit a store to buy a product, and as many as seventeen percent (17%) will visit a store first and then buy the product online. Meanwhile thirty-two percent (32%) of other buyers will research online, visit the store to see the product, and then back to the online store to purchase the product.

Reference [10] found that consumer confusion on the company's web site is still quite high, which is about thirty-three percent (33%). This can be a barrier for buyers who are still undecided. Reference [11] argued that the consumer confusion is a situation that must be faced by consumers. Consumers aware of their own confusion, but may not realize the magnitude of the excess load [11]. It is important to see that the consumer does not need to be burdened as it can affect the behavior of consumer decision to purchase.

Based on the above background, the researchers will develop a new construction to reduce consumer confusion towards purchase intention through e-commerce industry in Indonesia. The novelty of this research is omni-channel integration as an aspect of e-service quality which will be examined as a moderator variable that may contribute to

reduce consumer confusion in increasing consumer purchasing intentions.

II. LITERATURE REVIEW

A. e-Consumer Behavior

In line with rapid technological developments, consumer behavior is also changing. Consumers have the opportunities to access more information and consider purchasing decisions more quickly. Consumer is the person who identifies a need or desire, to purchase products, and consume the product. Reference [12] even gave a new name to the consumer which is called "e-consumer" and their behavior is called "e-consumer behavior".

Consumer behavior is defined as an assessment of the actions of consumers ranging from search, buy, use, assess, and dispose of the products and services that are expected to meet the needs of themselves [13], [14], [15], [16]. When companies know the factors that encourage consumer to make purchase, the company will be easier to develop strategies for influencing the consumer.

Consumers have six reasons to make online purchases, namely: convenience, choice, customization, communication, cost, and control [17]. First, convenience becomes a source for creating value for online customers. Second, making online purchases is a choice which has two dimensions: (i) product selection and availability of wider services offered to consumers and (ii) the availability of choice assistance. Third, customization is an Internet capability that enable customers to obtain individualized and highly interactive information. Online consumers do not only customize the product or service, but also personalize the marketing and the overall purchase of each customer interaction. Fourth, online consumers utilize communication skills supported by Internet technology. Fifth, the low cost encourages consumers to make online purchases. The availability of "dynamic pricing" feature allows the real time price changes to adjust supply and demand conditions. Sixth, control is another reason for consumers to make online purchases. Consumers can use Internet technology to find information, evaluate options, and make a decision to buy in the appropriate time with the consumer's own terms and conditions.

B. Purchase Intention

The purchase intention represent what is thought by consumers if they would buy [16]. According to [18], purchase intention is the tendency of consumers to buy products in the future and not switch to another brand. Purchase intention is the possibility of consumers to make a purchase of a product or behave in a certain way [13]. Purchase intention is defined as the probability (likelihood) of consumers to purchase the product [19].

Purchase intention represents "what consumers think they will buy" [16]. Purchase intention refers to the efforts of a consumer to buy a product or service [20]. According to the Theory of Planned Behavior were first developed by Azjen, a person's behavior is determined by the intention to perform that action [21]. The intention is informed itself

through behavior, subjective norms regarding its involvement in such behavior, and perceptions of the success of the individual in involvement as a target behavior [21]. Thus, purchase intention can be used to predict consumer behavior [22].

C. Omni-Channel Integration Quality

Online marketing needs to be combined with offline marketing to achieve optimal effectiveness [23]. Reference [6] refers to as the omni-channel retail experience "nonline" or a mix of online and offline behavior. Shopping through the omni-channel focused on sales of products through various channels [23], [24]. There is an integration into a physical store, through web sites and mobile platforms.

Omni-channel shopping gives an experience for the consumer to interact with retailers consistently across all channels [25]. Omni-channel is an operational model that is synchronized where all channels are aligned to the customer and performed consistently by the company [26]. Retail companies need to share knowledge on the entire platform of products to consumers. This will facilitate an integrated channel and attract shoppers to shop on any channel. Features that produce conflicting and confusing information should be minimized so that consumers do not become frustrated [27].

Omni-channel is a development approach that uses all channels dialog capabilities including television and video digital media, online advertising, direct mail, etc., which are generally used to promote awareness, interest and consumer response. It will integrate information, transactions and customer service through e-mail, mobile, e-commerce portal, a platform at the terminal point of sales (POS), and others that provide the means to interact directly with an individual who has made the leap from consumers into customers. Omni-channel become more than just a set of capabilities that span the media [28].

A new concept emerging from the use multi-channel is omni-channel [29]. This new approach emphasizes the idea that consumer can access online information about products in the store even physical contact with a very diverse information, including promotions, price, and negotiation. This shows the importance of the concept of fusion between online and offline sales model, as well as the synergy between these two models. Reference [29] stressed that companies must choose the channels that have a clear role, in which, consumers need to know what to expect and look for in each channel.

Omni-channel integration quality is defined as the inter-channel service consistency and the ability to offer a service with no limits on some channels which are integrated to the customer [30]. It will be a consideration consumer of omni-channel overall service excellence.

D. Mobile Usability

Usability is defined as a quality attribute that assesses the ease of user interface [31]. Usability also means the ease and convenience of use features. The word "usability" also refers to the methods for improving ease of use during the design process. Usability is formed by five components of quality

[31]. Those components form itself the dimensions of usability, namely: learnability, efficiency, memorability, errors, and satisfaction.

Web usability is expected to address consumer confusion with the user interface, which is easy to operate, the information is laid out well, and a design that does not confuse. High usability of website implies that the user can find the required information quickly by using the link [32]. Usability is the perceived ease of site navigation and clear information display [33].

Reference [34] proved the assumption that the new electronic environment, web usability perceived by consumers is a very important factor to build the store image and to influence consumer shopping behavior. In fact, with the passage of time, the design of the website has been regarded as a major factor when the company providing Internet services for consumers as a communication channel. In fact, the website design is very important in achieving user satisfaction [35].

In line with the development of mobile technology, consumers began to switch from the use of websites to mobile application. Usability is a very important aspect in mobile applications [3]. The usability of mobile application will improve customer satisfaction [3]. A mobile application is an IT software that is created and developed specifically for the mobile operating system, and installed on the handheld device, such as a smartphone or tablet. Mobile usability is defined as the use of mobile applications for specific users to achieve certain goals effectively, efficiently, and satisfaction in a specified context of use [3].

Mobile usability is one of the problems that challenge in adopting m-commerce [36]. The emergence of m-commerce raises doubts and concerns about the future of e-commerce [37]. In contrast to e-commerce, research shows new challenges in the design of mobile usability are not contained in e-commerce. It includes the small screen size, the limited screen resolution, the limited processing capabilities, inadequate battery for mobile devices, and large input mechanism.

There are several challenges that must be overcome to move from website to mobile [38]. The main difficulty faced by human is the small keypad and display interface which is limited to mobile phones compare to computer with bigger keypad and display. Therefore, the website designer in mobile commerce should offer web pages shrink with a number of features on the mobile interface rather than offer a variety of features on the website e-commerce.

E. Consumer Confusion

Consumer confusion is a failure of consumers to develop the correct interpretation of various aspects of a product or service [39]. Consumer confusion could occur in situations pre-purchase or post-the purchase [40]. Consumers can be confused by too much information ("consumer hyper-choice"), too little information, and excessive product [15], [41]. Reference [42] used other terms for consumer confusion which is called market place decision difficulty (MPDD) or difficulty making decisions.

Consumer confusion comes in many forms for their disagreement information and knowledge and lack of information [16]. Confusion may stem from mistaken identity, such as consumers mistakenly believe that the products of a company turns a product from another company [16]. Consumer confusion may also be due to the product names that are too similar, packaging is similar to other containers, certain product characteristics that are very similar, or because of other reasons.

Several literatures mentioned that there are three dimensions of customer confusion consisting of similarity confusion, overload confusion, and unclarity confusion [40], [49], [44]. Similarity confusion is defined as a lack of consumer understanding and the potential for changes on their choice or inappropriate brand evaluation due to the physical similarity of the products or services offered [40]. Similarity confusion can be caused by the similarity of the brand or by the emergence of similarities on quality or product attributes.

Overload confusion is associated with the fact that consumers are faced with an environment that provide too much information. The overload information can hamper customers to process information and understand fully, and consumers have confidence in making purchases [40].

Unclear confusion occurs when customers are forced to re-evaluate and change their beliefs or current assumptions regarding the product or purchasing environment [40]. Unclear confusion is a result of the ambiguous, unclear or contradictory information [39], [40]. The factors that cause unclear confusion are: the complexity of technology, ambiguity of information, dubious of product claims, conflicting information, and incorrect interpretation [39].

III. RESULTS AND DISCUSSIONS

The original research model that is illustrated in Figure 1 explains the usability aspects relating to consumer confusion still focused on web usability [32], [33]. The research results stated that web usability can reduce consumer confusion [32]. Configuration overload is strongly influenced by the usability of a website [33]. Configuration overload occurs when consumers are given too many options in the configuration, when consumers feel that a wide variety on offer that exceeds their ability to make decisions and as a consequence stating that they are not able to make the right decision. Thus, usability has a strong negative impact on consumer confusion [32].



Figure 1. Research Model

To access the product information offered, consumers need to obtain easy access to information with a variety of devices. Usability is an important factor for consumers before they make a purchase decision [45], [46]. This is reinforced that the usability problems that occur on the user is less clear information, too much information, and expected information actually does not exist [47].

Currently mobile devices such as a smartphone or tablet has been widely used in shopping online, and enable customers to access information anywhere. If the mobile application makes the consumer difficult to deal with product offerings and search for information, consumer confusion level become higher. Thus, it is assumed that consumer confusion can lead to lower consumer purchasing intention.

From the various definitions of the experts, researchers defined the mobile usability as the level of use of mobile applications for specific users to achieve certain goals effectively and efficiently, which is installed on mobile devices, such as smartphones or tablet. In this study, this study will use five dimensions forming usability proposed by [31] for measuring mobile usability, coupled with dimensions of effectiveness [48], and the dimension of readability introduced by [45]. Therefore, based on mobile usability, this research combines seven dimensions adopted from [31], [45], [35], which includes the dimensions Learnability, Efficiency, Memorability, Errors, Satisfaction, Effectiveness, and Readability.

Until now, there is no studies that focuses on the mobile usability associated with consumer confusion. Indeed, there are some differences between aspects of web usability and mobile usability. However, the existence of additional dimension readability on mobile usability factor in which this dimension is not included in web usability aspects [45]. Therefore, this study examined the dimension readability on mobile usability.

To reduce the level of consumer confusion, retail e-commerce industry can do omni-channel integration aimed at helping consumers rather than just focusing on transaction and delivery [26]. Therefore, at this time omni-channel become the most effective strategy to be adapted and innovated in enhancing the consumer experience [49]. In this study, omni-channel integration quality serve as moderator variables that are considered to strengthen in reducing the confusion of consumers in order to increase their purchase intention.

Products, booking, promotion or price which has inconsistent information can cause consumer confusion. It can reduce customer satisfaction and consumer purchases [30]. The study also found that the dimensions of the consistency of the information, process consistency, customer data integration, and compatibility channel has proven to be factors that are positively related to customer satisfaction in the omni-channel [30]. The result of the research stated omni-channel integration quality are positively associated with omni-satisfaction.

Research model [30] adopted a conceptual framework developed by [50], which identifies quality integration as a new key component of service quality. In this framework, integration quality is defined as "the ability to provide customers with a seamless service experiences across channels" [50].

Reference [30] which has been investigating the omni-channel interaction quality is the basis for this research to continue empirical study of the omni-channel quality integration relates to the behavior of purchase intention. Integration quality is one component of the service quality

(or called new service quality) that may affect a consumer's purchase intention. Therefore, integration is the foundation of an important quality in the omni-channel. It is also one of the novelty contained on this research.

The importance of involving the omni-channel integration quality in addressing consumer confusion in this research is to the start of migration from multi-channel concept to omni-channel concept. It has been predicted that omni-channel model become one of the strengths of the retail industry, especially in e-commerce in Indonesia. Omni-channel can integrate information, transactions and customer service through email, mobile, e-commerce portal, a platform at the terminal point of sales (POS), and others that provide the means to interact directly with an individual who has made the leap from consumers become customer.

In the e-commerce environment, empirical studies have concluded that service quality has a positive relationship with a user channel satisfaction. Similarly, research found that both offline and online service quality were associated with overall customer satisfaction [51]. Therefore, in omni-channel context, it is proposed that omni-channel integration quality is a key factor that enhances to the overall satisfaction of multi-channel shoppers. When service providers provide a greater perceived omni-channel integration quality, the shoppers will experience a greater satisfaction in the omni-channel context.

The construct of the research will be employed as shown in Fig.2. This study will also extend these dimensions to an omni-channel environment. As only a few researches has been conducted in this area, this research will also offer a set of potential indicators for the integration quality construct.

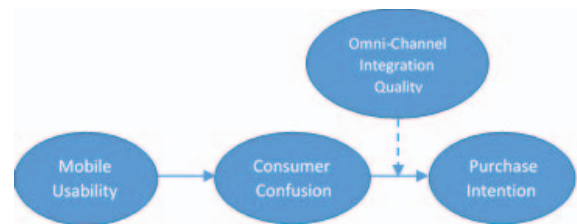


Figure 2. The Proposed Research Model

Based on the above argumentation, the hypothesis is formulated as follows:

H1: Mobile usability negatively influence on consumer confusion.

H2: Mobile usability positively influence on purchase intention that mediated by consumer confusion.

H3: Mobile usability positively influence on purchase intention that mediated by consumer confusion and moderated by omni-channel integration quality.

In this research, the population to be studied is the consumers who have conducted transactions through online retail shopping incorporated in Indonesian E-Commerce Association (IDEA). About 11 percent of Internet users in Indonesia (about 78 million people) are consumers conducting transactions online shopping. This number reached about 8.58 million people and will be used as a population of this study. According to [52], in determining the number of samples, when population exceeds 500,000

with a 95 percent confidence level ($Z^2_{c,1} = 1.96$) with an error rate of 5 percent, the samples required in this study is 385. The next step is to conduct sampling by using convenience sampling.

In this study, selected respondents were 62% male and 38%. In addition, respondents most shop online with an average of once in 1-3 months as shown in Fig. 3.

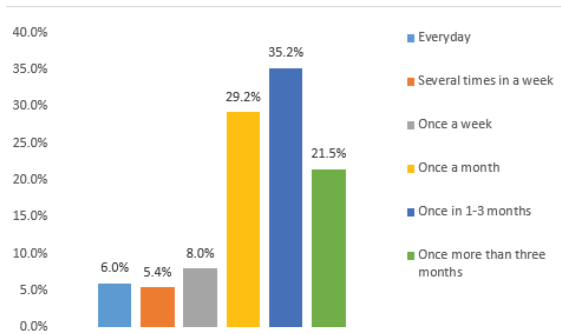


Figure 3. The frequency of online shopping

The device is often used by the respondents when shopping online is to use a smartphone (56.7%) and using a laptop (26.1%) as shown in Fig. 4.

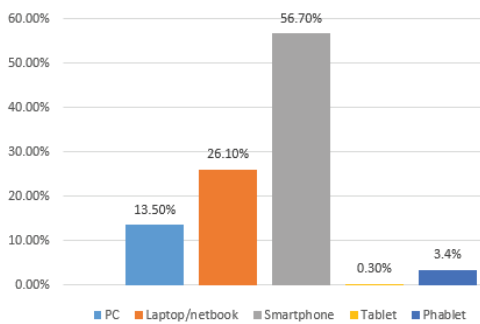


Figure 4. Devices used to shop online

The results showed that most respondents always choose and shop for products on more than one channel as shown Fig. 5.

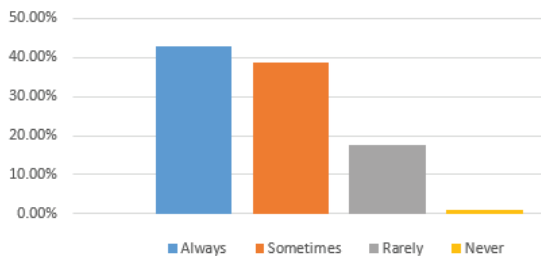


Figure 5. Shopping online on more than one channel

IV. CONCLUSION

The main contribution of this study is the thought about omni-channel integration quality concept in e-commerce industry in Indonesia. This study will also explore further

about the role of mobile usability towards consumer confusion. Recently consumers use mobile devices for online purchasing. It makes the company should consider the development of mobile application where it is expected to improve the competitiveness of enterprises.

Refereeing the level of consumer confusion in Indonesia which quite high, it would cause declining in purchase intentions. One contributing factor is that sixty-five percent (65%) of online consumers abandon shopping carts or cancel their purchase. Thus, the features that produce conflicting and confusing information should be minimized so that consumers do not become frustrated or confused.

Further research will implement on online retail in Indonesia. Online retail is one of e-commerce business model proposed by the Government of Indonesia. E-commerce industry is currently receiving the attention and support of the Indonesian Government and set forth in the Roadmap of Indonesia e-Commerce 2016.

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